

**\* NOTICES \***

JPO and INPIT are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.\*\*\*\* shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

---

**CLAIMS**

---

[Claim(s)]

[Claim 1]It is the artificial leather in which the lamination confounding inside of the body it was placed between insides of a super-thin textiles confounding body whorl of 0.5d or less by elastic textiles was filled up with an elastic polymer, and \*\*\*\*\* of the above-mentioned artificial leather is not less than 20% under 500 g/cm load, And artificial leather which was excellent in a feeling of wear, wherein the above-mentioned textiles carried out crimp contraction and also contract a lamination confounding object in connection with it as the whole whose repetition extension recovery factor is not less than 80%.

[Claim 2]Gray goods of contractile textiles using compound thread which consists of polymer of two or more ingredients from which contraction to false twisting thread or heat differs, Or make an inside of a super-thin textiles confounding object of 0.5d or less intervene, use as a lamination confounding object the above-mentioned contractile textiles by which the heat set was carried out at a temperature lower than dyeing-and-finishing process temperature, and subsequently, A manufacturing method of artificial leather which considered it as a sheet like object filled up the acquired above-mentioned lamination confounding object with an elastic polymer, and excelled [ temperature / in a dyeing work process / still higher than the above-mentioned heat set temperature ] in a feeling of wear which consists of a lamination confounding object in which elastic textiles shrinking the above-mentioned sheet like object intervened.

---

[Translation done.]

**\* NOTICES \***

JPO and INPIT are not responsible for any damages caused by the use of this translation.

1.This document has been translated by computer. So the translation may not reflect the original precisely.

2.\*\*\* shows the word which can not be translated.

3.In the drawings, any words are not translated.

---

**DETAILED DESCRIPTION**

---

**[Detailed Description of the Invention]**

A Field of the Invention this invention relates to the artificial leather which was excellent in a feeling of wear. It is related with artificial leather which was excellent in the feeling of wear which was suitable for the glove used for the leisure fields, such as the sport fields, such as baseball and golf, and hunting, the object for fashion gloves for women, the garments field which needs elasticity, etc. in detail, and a manufacturing method for the same.

It is known widely conventionally [ conventional / technical ] that the artificial leather in which the lamination confounding inside of the body which consists of super-thin textiles and knit fabrics was filled up with the elastic polymer is looked at by JP,55-26222,B. It has the mechanical strength where this artificial leather is flexible as compared with the artificial leather in which the nonwoven fabric which consists only of the conventional super-thin textiles was filled up with the elastic polymer, and has the aesthetic property which was rich in drape property and which was excellent in respect of strong ductility, tearing strength, seam strength, etc. that is, the grade which mechanical strength does not bear at all as garments only with a super-thin textiles confounding object in the case of the artificial leather which consists of super-thin textiles and an elastic polymer — since it is small, it must be filled up with an elastic polymer so much, therefore pliability and drape property are lost, and it becomes the strong aesthetic property [ GABAGABA / aesthetic property ] of a hard feeling of rubber. However, since the mechanical strength of a lamination confounding object, i.e., strong ductility, tearing strength, and seam strength improve when knit fabrics intervene when it is the artificial leather in which the lamination confounding inside of the body which consists of super-thin textiles and knit fabrics was filled up with the elastic polymer, Mechanical strength sufficient as garments is reached only by being filled up with a little elastic polymers. That there is little quantity of this elastic polymer can build making aesthetic property into what was flexible and was rich in drape property, and a light product.

the problem which an invention tends to solve — especially the artificial leather that consists of a super-thin textiles confounding object which intervenes in the conventional knit fabrics as mentioned above, although it excels as an object for common garments to be sure, When it applies to objects for leisure, such as objects for sports, such as baseball and golf, hunting, fishing, and the glove for women, thickness is thick, and rubber elasticity is too strong, and there is little elongation, and it does not adapt itself to a hand in the sensibility which \*\*\*\*\* (ed). Since there was little elongation, the thing for garments which needs elasticity was not able to be used. Therefore, the field which uses artificial leather was restricted until now.

The means this invention persons for solving a problem reach this invention, as a result of repeating research wholeheartedly about the above-mentioned problem. That is, one of this inventions is the artificial leather in which the lamination confounding inside of the body it was placed between the insides of a super-thin textiles confounding body whorl of 0.5d or less by elastic textiles was filled up with the elastic polymer, and \*\*\*\*\* of the above-mentioned artificial leather is not less than 20% under 500 g/cm load.

And as the whole whose repetition extension recovery factor is not less than 80%, the above-mentioned textiles carry out crimp contraction, the artificial leather which was excellent in a

feeling of wear also contracting a lamination confounding object in connection with it — it comes out, and it is and another, The gray goods of the contractile textiles using the compound thread which consists of polymer of two or more ingredients from which the contraction to false twisting thread or heat differs, Or make the inside of a super-thin textiles confounding object of 0.5d or less intervene, use as a lamination confounding object the above-mentioned contractile textiles which are not contracted on the real target in which the heat set was carried out at a temperature lower than dyeing-and-finishing process temperature, and subsequently, considering it as the sheet like object filled up the acquired above-mentioned lamination confounding object with the elastic polymer — further — dyeing and finishing — the manufacturing method of the artificial leather which was excellent in a feeling of wear which consists of a lamination confounding object in which the elastic textiles are in process and shrinking the above-mentioned sheet like object at a temperature higher than the above-mentioned heat set temperature intervened — it comes out.

Artificial leather by this invention is a point with important \*\*\*\*\* in low stress being large. Under 500 g/cm load, it is required not less than 20% of ductility and to have 25 to 40% of ductility preferably.

When it wears as a glove in 20% or less of ductility, bending of a hand is sensed tight and is not preferred. As an elastic garments raw material, it is too small, and elongation is sensed narrow at the time of wear, and is not preferred.

\*\*\*\*\* in the artificial leather which was excellent in a feeling of wear of this invention is greatly dependent on \*\*\*\*\* of elastic textiles. It is possible by designing \*\*\*\*\* of the contractile textiles using the compound thread which becomes considering it as the ductility of not less than 20% of latitudinal direction under 500 g/cm load from the polymer of two or more ingredients from which the contraction to false twisting thread or heat differs in this invention to not less than 20%. The contractile textiles using the compound thread which consists of different polymer of two or more ingredients of the shrinkage characteristics to the thing which used false twisting thread, or heat, for example of the contractile textiles by which it is placed between the insides of this artificial leather are preferred. Not less than 20% of \*\*\*\*\* can be given to artificial leather under 500 g/cm load by making crimp reveal by heat treatment in a dyeing-and-finishing process, and carrying out crimp contraction of false twisting thread or the above-mentioned compound thread which constitutes contractile textiles. This sets the gray goods or heat set temperature of contractile textiles as a temperature lower than dyeing-and-finishing process temperature, and after it makes the contractile textiles which carried out the heat set placed between super-thin textiles confounding objects and is filled up with an elastic polymer, in a dyeing work process, It is a manufacturing method of the artificial leather which was excellent in a feeling of wear shrinking a latitudinal direction not less than 20%. for example, the case where contractile textiles comprise false twisting thread of polyester fiber — dyeing-and-finishing process temperature a temperature lower than 120 – 130 °C — for example, — The heat set temperature about 110 – 120 °C is preferred. The method of carrying out crimp contraction in a dyeing work process using the contractile textiles which carried out the heat set at a temperature lower than the gray goods or dyeing-and-finishing process temperature of these contractile textiles, In order for contractile textiles to reveal crimp, to carry out crimp contraction into a dyeing-and-finishing process and to contract a lamination confounding object in connection with it, base fabric density becomes high, the surface becomes more precise, and there is a desirable advantage of a high grade feeling coming out.

Being able to use artificial leather by this invention for the garments in which elasticity is demanded, for example, a stretchability raw material, a repetition extension recovery factor needs to use 80 or more. A repetition extension recovery factor here means the value measured by the JIS-L1096-1979 repetition constant-speed Sadanobu chief method. If a repetition extension recovery factor is smaller than 80%, by use of a repetition of the bending stretch at the time of wear, etc., sag becomes large, HIFI and a knee part "fall out" arises, and it is not desirable. In order to set up a repetition extension recovery factor to not less than 80%, the contractile textiles in which false twisting thread or the compound thread which consists of

different polymer of two or more ingredients of the shrinkage characteristics to heat was used are used as contractile textiles. . [ whether it uses without heat-treating the gray goods themselves so that a latitudinal direction may be made to contract the above-mentioned contractile textiles not less than 20% in a dyeing work process, and ] Or it is possible to also set up a repetition extension recovery factor to not less than 80% to use the contractile textiles which carried out the heat set at a temperature lower than the heat history in a dyeing-and-finishing process, at the same time it sets up \*\*\*\*\* to not less than 20%.

Next, as for the super-thin textiles which constitute the artificial leather which was excellent in a feeling of wear of this invention, it is preferred that 0.5 denier or less of the single yarn fineness is 0.3 denier or less further. In 0.5 deniers or more, pliability is inferior and a desirable writing effect is not obtained. A writing effect flexible [ aesthetic property ] and graceful is obtained as it is 0.5 denier or less.

The raw material in particular of super-thin textiles is not limited, and may use any, such as regenerated fiber, such as synthetic fibers, such as polyethylene terephthalate (PET), nylon 6, and nylon 6.6 and polyacrylonitrile, rayon, and cuprammonium rayon.

As a method of obtaining a very thin thread, the conventional method is applicable. For example, it can use as ways all obtain the very thin thread of this invention, such as law by a mixture very thin thread, a direct spinning method, the melt blowing methods, such as law by sea island textiles, and law by mixed textiles.

A super-thin textiles confounding body whorl sheet-izes super-thin textiles, for example by the card crossing layer method, the milling-paper method, the melt blowing method, etc., makes this confound by pillar-shaped style method, the needle punch method, etc., and can be obtained. From the homogeneity of a sheet, and combination with a pillar-shaped style method, the super-thin fibrous sheet by the milling-paper method is used preferably.

Next, the manufacturing method of artificial leather of this invention is explained.

For example, the heat set of the gray goods of the plain weave fabric of false twisting thread with crimp contraction is carried out at a temperature lower than dyeing-and-finishing process temperature.

Next, the sheet which consists of super-thin textiles directly obtained by the spinning method is made by the milling-paper method. Different textiles of solvent solubility may be mixed in the super-thin fibrous sheet, and it is in process, and extraction removal is carried out with a solvent and it is useful for aesthetic property adjustment. Inserting the above-mentioned plain weave fabric between this super-thin fibrous sheet — the pillar-shaped stream of the nozzle diameter 0.05 — many fine-pores nozzles of 0.5 mm to the injection pressure 1 — 30 kg/cm<sup>2</sup> — the surface of the above-mentioned sheet, and a rear face — the whole surface — reliance confounding processing is carried out without dark circles.

Next, after an EMIRI paper performs \*\*\*\*\* of a confounding object, in order to make a sizing agent, for example, polyvinyl alcohol, adhere to a textiles confounding object and to protect a surface fluff from an elastic polymer after that, a sizing agent (CMC), for example, carboxymethyl cellulose, and polyvinyl alcohol (PVA) — or — It coats with the blend sizing agent of CMC and PVA, etc. Then, a confounding object is impregnated with an elastic polymer and an elastic polymer is solidified by the dry type solidifying method or a wet coagulation method. In this case, especially since the elastic polymer in which it filled up with the wet coagulation method has fine porous structure, it is desirable.

After impregnating coagulation is completed, extraction removal of the sizing agent with which it was impregnated during coagulation at the confounding object, and the sizing agent which carried out the coat to the surface of the confounding object is carried out.

If finally dye this, and make the crimp of contractile textiles reveal, crimp contraction is carried out, a lamination confounding object is also shrunk in connection with it and ready hair of the surface fluff is carried out with a brush etc. still more preferably, it will have a good writing effect and artificial leather of this invention excellent in a feeling of wear will be obtained.

Below in an example, an example explains this invention concretely. The measuring method used in the following examples is based on the following method.



Elongation: Measure the elongation under 500 g/cm load by a KES-F system (tension tester of Kawabata's Evaluation System for Fabric).

extension: — JIS L 1096-1979 — degree [ of repetition constant-speed Sadanobu chief method flexible ]; — 0.1-d polyethylene terephthalate fiber (PET-fiber and following brief sketch) obtained by the value example 1 direct spinning method in the JIS L-1079 cantilever method It cut into 3 mm by the cutter. Subsequently, paper was milled by the wet milling-paper method, and weight obtained the nonwoven sheet of 35 g/m<sup>2</sup> and 40 g/m<sup>2</sup>.

The gray goods of the contractile plain weave fabric of the false twisting thread usage who consists of PET-fiber of 100d/48f were shrunk in priming, it passed from gray-goods products, and it elongated 5% to the state which carried out 16% of \*\* width ON \*\*, and the heat set was carried out by 120 \*\*. It passed through contraction in the hot water of this thing, and 6.5%, it is 11.0% of \*\*, and it was [ it passed through the elongation under 500 g/m<sup>2</sup> constant stress, and ] 20.6% of \*\* 6.5%.

In the lower layer, said plain weave fabric was made into the interlayer, 40 g/m<sup>2</sup> was made into the upper layer, and 35 g/m<sup>2</sup> of the aforementioned paper-milling nonwoven sheet was laminated. It carried on the wire gauze of 80 meshes which has the suction box where the perforated plate was attached to the lower part in this, and applied the high-pressure-water style 6 times of a table and the reverse side at a time each everywhere using the nozzle of diameter 0.2 mm. The obtained nonwoven-fabric-state things are weight 124 g/m<sup>2</sup>, 0.58 mm in thickness, and density. It was 0.216g/[cm ]<sup>3</sup>.

This nonwoven-fabric-state thing Carried out raising treatment with the sandpaper of 320 meshes, PVA was made to adhere after that, and it dried. Then, the raised face was thinly coated with the 20% solution of carboxymethyl cellulose, and it dried.

Thus, what was obtained was impregnated and was made to solidify the 15% DMF solution of a polyurethane elastomer underwater. In that case, dissolution removal also of the cull BOSHICI methyl cellulose is carried out. It is a disperse dye about this thing. Make the crimp of the 130 \*\* false twisting thread which carries out high-temperature-high-pressure dyeing, and constitutes contractile textiles reveal, and crimp contraction is carried out, Although also shrank the lamination confounding object in connection with it, the post reduction washing was performed, ready hair of the surface was lightly carried out with the brush after desiccation and target artificial leather was obtained, it was the artificial leather which was extremely excellent in a feeling of wear. Contraction of the latitudinal direction contracted this artificial leather 13% greatly in the dyeing-and-finishing process.

The physical properties of leather are shown below.

0.64 mm in thickness, weight 194 g/m<sup>2</sup>, density 0.303 g/cm<sup>3</sup>, 26.8% of \*\*\*\*\* repetition extension recovery factor It passes. 90.8%, \*\* The degree of 84.9 % flexible The 0.1-d nylon fiber obtained by the 35-mm example 2 direct spinning method was cut into 3 mm by the cutter. Subsequently, paper was milled by the wet milling-paper method, and weight obtained the nonwoven sheet of 35 g/m<sup>2</sup> and 40 g/m<sup>2</sup>.

16% of \*\* width ON \*\* of the gray goods of the plain weave fabric of the false twisting thread usage who consists of 66 nylon fibers of 50d/24f is passed through and carried out 5%. The heat set was carried out at 120 \*\*. It passed through contraction in the hot water of this thing, and it was 13.5% of \*\* 11.5%. This plain weave fabric was made into the interlayer, and the weight of said paper-milling nonwoven sheet used 40 g/m<sup>2</sup> and 35 g/m<sup>2</sup>, and performed lamination processing like Example 1.

With subsequently, acid dye Dye at 125 \*\*, make it revealed by the crimp of the false twisting thread which constitutes contractile textiles, and crimp contraction is carried out, The lamination confounding object was also shrunk in connection with it, the post reduction washing was performed, and ready hair of the surface was lightly carried out with the brush after desiccation, and although the target leather was obtained, it became the artificial leather which was extremely excellent in a feeling of wear. This obtained artificial leather had large contraction of the latitudinal direction in a dyeing-and-finishing process, and was 12.7%.

The physical properties of leather are shown below.

0.61 mm in thickness, weight  $174 \text{ g/m}^2$ , density  $0.285 \text{ g/cm}^3$ , 31.8% of \*\*\*\*\* repetition extension recovery factor It passes and they are 90.2%, and the 85.3% of \*\* degree of adaptability. The gray-goods textiles of the plain weave fabric of the false twisting thread usage who consists of PET-fiber of 100d/48f used in 30.5-mm example 3 Example 1 are made into an interlayer, without carrying out a heat set, The same paper-milling sheet  $40 \text{ g/m}^2$  as Example 1 was used as the lower layer,  $50 \text{ g/m}^2$  was made into the upper layer, and it laminated. When these gray goods were shrunk in priming, it passed through contraction, and it was 39% of \*\* 38.5%.

It was the artificial ratio leather which was extremely excellent in a feeling of wear although contraction of the latitudinal direction in the inside of a dyeing-and-finishing process was 26.5%, and was excellent also in repetition extension recoverability in the acquired lamination confounding object when the same processing as Example 1 was performed. Physical-properties data is shown below.

0.74 mm in thickness, weight  $230 \text{ g/m}^2$ , density  $0.310 \text{ g/cm}^3$ , 24.5% of \*\*\*\*\* repetition extension recovery factor It passes and they are 89.5%, and the 84.5% of \*\* degree of adaptability. Since \*\*\*\*\* of the artificial leather which was excellent in a feeling of wear of 34.5-mm effect-of-the-invention this invention is not less than 20% under  $500 \text{ g/cm}$  load, When it applies to the glove for objects for leisure, such as objects for sports, such as baseball and golf, hunting, fishing, and the objects for women, it follows in footsteps of bending of a hand at the time of wear, and is extended, and it adapts itself to a hand well.

When artificial leather of this invention is applied to the garments field, it can apply to the garments field which needs elasticity enough. Since the sag at the time of wear and an elbow omission will be lost if the repetition extension recovery factor of artificial leather is made not less than 80%, it will become desirable.

Thus, artificial leather of this invention extends further the field of the invention of old artificial leather, and is very effective.

---

[Translation done.]